
TABLE OF CONTENTS

ACKNOWLEDGEMENTS	iii
SUMMARY	v
TABLE OF CONTENTS	ix

SECTION:

1.0 INTRODUCTION.....	1-1
1.1 SAMPLING AREA CHARACTERISTICS	1-2
1.2 WASTEWATER COLLECTION AND TREATMENT	1-2
<i>The Treatment Process</i>	1-3
Primary Treatment	1-5
Secondary Treatment	1-6
<i>Combined Sewer Overflows</i>	1-6
2.0 WATER QUALITY MONITORING PROGRAMS	2-1
2.1 AMBIENT AND POINT SOURCE MONITORING PROGRAMS	2-2
<i>Ambient Monitoring</i>	2-3
<i>Point Source Monitoring</i>	2-3
2.2 WATER COLUMN MONITORING	2-5
<i>Bacteria</i>	2-7
<i>Temperature and Salinity</i>	2-9
<i>Dissolved Oxygen</i>	2-10
<i>Transparency</i>	2-10
<i>Nutrients</i>	2-11
<i>Chlorophyll and Pheopigments</i>	2-12
<i>Water Column Methods</i>	2-13
Field Methods	2-13
Laboratory Methods	2-14
2.3 SEDIMENT MONITORING.....	2-15
<i>Sediment Methods</i>	2-16
Field Methods	2-16
Laboratory Methods	2-17
2.4 SHELLFISH AND ALGAE	2-17
<i>Shellfish and Algae Methods</i>	2-18
Field Methods	2-18
Laboratory Methods	2-19
2.5 REGULATORY STANDARDS	2-21
<i>Washington State Standards for Pollutants</i>	2-21
Fecal Coliform Bacteria Standards.....	2-21
Sediment Standards	2-23
Biota Standards.....	2-26
Water Standards.....	2-27

3.0 SUMMARY OF 1997 MONITORING DATA	3-1
3.1 1997 PRECIPITATION DATA.....	3-1
3.2 MONITORING RESULTS	3-2
<i>Water Column Data</i>	3-2
Results	3-3
Water temperature	3-3
Salinity	3-5
Transparency.....	3-9
Total suspended solids.....	3-9
Dissolved oxygen.....	3-10
Silica	3-12
Chlorophyll and phaeophytin.....	3-12
Nitrogen compounds	3-14
Phosphorous.....	3-16
Bacteria.....	3-17
<i>Sediment Chemistry Data</i>	3-22
Results	3-22
Conventionals.....	3-22
Metals	3-23
Organics	3-26
Bacteria	3-28
<i>Shellfish Data</i>	3-29
Results	3-29
Metals.....	3-30
Organics	3-30
Bacteria	3-31
<i>Macroalgae Data</i>	3-34
Results	3-34
4.0 GLOSSARY	4-1
5.0 REFERENCES	5-1

APPENDICES:

- A WATER COLUMN MONITORING DATA
- B SEDIMENT MONITORING DATA
- C SHELLFISH MONITORING DATA
- D MACROALGAE MONITORING DATA
- E SAMPLING STATION LOCATIONS

LIST OF FIGURES

1-1	King County Treatment Plant Locations.....	1-4
1-2	The Wastewater Treatment Process	1-5
2-1	Ambient Monitoring Stations	2-4
2-2	Point Source Monitoring Stations	2-6
3-1	Monthly Precipitation for 1997	3-2
3-2	Water Temperature at Six Stations	3-4
3-3	Water Temperature Variations (1992-1997).....	3-6
3-4	Salinities at Six Stations	3-7
3-5	Salinity Varations (1992-1997).....	3-8
3-6	Dissolved Oxygen at Six Stations.....	3-11
3-7	Dissolved Oxygen Varations (1992-1997).....	3-13
3-8	Frequency Distribution of Ammonium Concentrations at All Stations Sampled in 1997	3-16
3-9	Fecal Coliform Stations and Results.....	3-21
3-10	Sediment Organic Carbon and Grain Size Data.....	3-24
3-11	Association Between Grain Size and Chromium.....	3-26
3-12	Fecal Coliform Values for Water and Shellfish from Station KSHZ03	3-33

LIST OF TABLES

2-1	Summary of 1997 Monitoring Programs	2-2
2-2	1997 Ambient Stations and Parameters Measured	2-5
2-3	1997 Point Source Stations and Parameters Measured.....	2-8
2-4	Laboratory Methods and Detection Limits for General Water Quality Parameters	2-14
2-5	Laboratory Methods and Detection Limits fpr Sediments	2-18
2-6	Laboratory Methods and Detection Limits for Shellfish and Algae	2-20
2-7	Fecal Coliform Bacteria Standards	2-22
2-8	Washington State Marine Sediment Management Standards	2-25
3-1	1997 Ambient Monitoring—Fecal Coliform Bacteria.....	3-18
3-2	1997 Point Source Monitoring—Fecal Coliform Bacteria	3-19
3-3	Metals Summary for Subtidal and Intertidal Sediments	3-25
3-4	Organic Compounds Detected in Sediments	3-27
3-5	Metals Summary, Stations KSSN04 & KSSN05.....	3-31
3-6	Metal Concentrations in Macroalgae	3-35